

deep. The thickness of the coating is determined by the maximum grain size of the aggregate. Preferably, the relatively large aggregate particles in the layer are closely spaced, with the finer particles of filler taking up the interstitial space. The abuse resistance tests, as determined by ASTM D4977 (modified), show the compositions of the present invention survive from 200 to 1000 cycles, and can be extended to as many as 5000 cycles, as compared to unpainted gypsum drywall that typically fails after 20 to 30 cycles. In order to provide the self-gauging, abuse-resistance properties, the coating composition must contain a sufficient quantity of aggregate particles in the prescribed size range to form a layer of closely spaced particles.

Claim 1, the only independent claim, has been amended to define the amount of resin binder and the amount of aggregate used in the coating composition and to specify the film thickness and particle count that result when the coating composition is applied to a substrate. These are the basic requirements to produce the abuse-resistance. Dependent claims 4, 5 & 6 further define these parameters for settable compositions. Dependent claims 18, 7 & 8 further define these parameters for the dryable compositions. Dependent claims 19, 9, 10, 11 & 12 further define these parameters for sprayable compositions. It is submitted that these amendments more fully define applicants' invention and more clearly distinguish applicants' invention over the prior art.

In paragraph 2(a) of the Office Action the Examiner rejected claims 4, 5 and 15 under 35 USC §112 based on the use of the phrases "setting-type,"

"drying-type" and "sprayable-type." Applicants have deleted the work "type" from those phrases in affected claims in order to cure this objection. Applicants would like to thank the Examiner for participating in a telephone interview with applicants' counsel, Donald E. Egan on July 15, 2002 in which this issue was discussed. During the interview, the Examiner indicated the forgoing amendment would overcome this rejection.

In paragraph 2(b) of the Office Action the Examiner rejected claim 4 under 35 USC §112 asserting that it was inconsistent with claim 1 from which it depends. The Examiner asserted that the range of 0.020 – 0.050 inches for the thickness of the aggregate layer in claim 4 is broader than the 30 - 50 mesh size for the aggregate recited in claim 1. This rejection is apparently based on the nominal dimensions of mesh sizes set forth in the claims (50 mesh is 0.012 inches and 30 mesh is 0.023 inches) to draw this conclusion. Applicants' specification at pages 7 - 8 describes the preferred aggregate as "Frac Sand 30-50" and sets forth the commercial specification for the Frac Sand 30-50 as being 90% minus 30 mesh and 90% plus 50 mesh, which obviously allows for the inclusion of some particles outside the specified ranges. Applicants' have inserted the commercial specification (90% minus 30 mesh and 90% plus 50 mesh) in claim 1 so that all claims are so limited.

Further, the aggregate particles actually present in a typical commercial sample of a 30-50 aggregate product are not spherical. Most of the particles in such a product have one or two dimensions that are outside the nominal dimensions of 30 mesh and 50 mesh screens. In order to show the sizes of

particles in commercial aggregate, applicants are presenting herewith the Declaration of Richard B. Stevens, one of the applicants herein. The Declaration reports on measurements made by Mr. Stevens of a commercial sample of the preferred sand (Frac Sand 30-50). His measurements show that applicants' claims are consistent with respect to aggregate sizes and film thicknesses.

In paragraph 4 of the Office Action the Examiner has rejected claims 1, 3 and 7 – 13 under 35 USC § 102(e) as being anticipated by US Patent 6,063,472 to Takaoka et al. Takaoka et al does not disclose a ready to use composition or self-gauging coating composition having improved abuse resistance to which the applicants' claims are directed. Takaoka et al describes an architectural material produced by applying a decorative composition to a substrate such as a board in a manufacturing operation in which the decorative coating is leveled by passing the coated board between rollers (See Figure 3). At Col 5 lines 5 – 15 Takaoka et al describes aggregates of 0.03 to 2 mm that are generally smaller than the 0.020-0.050 inches (0.51-1.27 mm) claimed by applicants, although there is some overlap. Takaoka et al does not disclose the critical size limits required by applicants' claims. Takaoka et al fails to disclose the particle count required by all of applicants' claims. The Declaration of Richard B. Stevens explains that the coatings of Takaoka et al are considerably softer than the coatings claimed by applicants and that they would not provide abuse resistance of applicants' coatings. Accordingly, Takaoka et al fails to anticipate any of applicants' claims.

In paragraph 5 of the Office Action the Examiner rejected claims 1, 3 – 4 and 9 – 10 under 35 USC § 102(b) as being anticipated by US Patent 5,891,948

to Kano. Kano teaches a coating composition that is filled with plastic flakes to color the coating and to mimic granite, although he may use natural aggregates such as "lime rock," silica sand or mica (See col 7 lines 25-26). The particles may have diameters of 0.05 to 5 mm (0.00197 to 0.197 inches) (Col 6 line 44) and the coating may a film thickness of 1 to 7 mm (0.0397 to 0.275 inches) (See col 4 lines 57-58). Clearly Kano does not disclose the critical aggregate size limits required by applicants' claims.

The Kano patent describes a coating that comprises solid resin flakes (Col 5, line 50) that are prefabricated by encapsulating an aggregate or color particle with a resin which is then sprayed, dried and peeled off the substrate for use (Col 8, lines 22-23). These particles are then added into a coating mixture for manufacture of a faux granite surface. The resin flakes used in the composition have a top size limit of 30 mm or 30,000 microns! Clearly this would not produce a self-gauging composition as claimed by applicants. The aggregate that these resin flakes are made from have a size of 50 – 5000 microns. The film thickness of the Kano patent is 1-7 mm (1000 – 7000 microns) (column 4 line 57) that is generally thicker than the film thickness (508-1270 microns) claimed by applicants. Kano too fails to disclose the particle count required by all of applicants' claims. Accordingly, Kano also fails to anticipate any of applicants' claims.

In paragraph 6 of the Office Action the Examiner rejected claims 1, 3, 9 – 10 and 13 under 35 USC § 102(b) as being anticipated by US Patent 5,869,166 to Caldwell. Caldwell describes a coating composition containing a "coarse filler

(average particle size about 75 to about 350 microns)" which is about 0.003 to 0.014 inches. This is clearly outside the range of at least 0.020 inches (or 508 microns) required by applicants' claims. Caldwell too fails to disclose the particle count required by all of applicants' claims. Accordingly, Caldwell also fails to anticipate any of applicants' claims.

In paragraph 9 of the Office Action the Examiner rejected claims 2, 4 – 6 and 14 - 17 under 35 USC § 103 as being obvious over US Patent 6,063,472 to Takaoka et al in view of US Patent to 6,180,037 to Anderson et al. Anderson et al describes a process for manufacturing sheets having a high level of inorganic filler, not a ready to use, self gauging coating composition as claimed by applicants. At pages 7 – 8 of the Office action, the Examiner argues that Anderson et al makes obvious the particle counts of applicants' claims, citing col. 21, lines 50-60 and col. 36, line 44 – col. 37, line 4. In fact Anderson et al does not describe the particle counts set forth required by all of applicants' claims. At best, Anderson et al teaches how the particle count affects various rheological properties, but Anderson does not disclose the particle counts required by applicants' claims.

The Anderson et al patent refers to fabrication of sheet goods that can be formed into food packaging using a binder and inorganic filler. Anderson et al unfortunately give very little data for the size of the inorganic filler, although it is clear that they are discussing finely ground calcium carbonate that would be described as powdered filler in applicants' usage. Anderson et al mention the use of calcium sulfate hemihydrate and dihydrate, i.e. a plaster that can be used

to impart hardness, but it is the aggregate size and packing densities that provide the self-gauging and abuse resistance functions to applicants' invention. The coarsest inorganic material or "aggregate" in Andersen et al was <100 micron glass spheres. There are references to 0.5 mm and 1 mm sheets, but these are the finished thickness of the completed sheet goods for forming into clamshell food packaging. Neither Takaoka et al nor Anderson et al disclose a ready to use, self-gauging coating composition that provides improved abuse resistance based on an aggregate having the particle size and particle count defined by applicants' claims. Accordingly it is submitted that the combination of US Patent 6,063,472 to Takaoka et al in view of US Patent to 6,180,037 to Anderson et al fails to make obvious applicants' claims.

In paragraph 10 of the Office Action the Examiner has rejected claims 2, 4 – 17 under 35 USC § 103 as being obvious over US Patent 5,891,948 to Kano in view of US Patent to 6,180,037 to Anderson et al. The Examiner argues, as in paragraph 9, that Anderson et al makes obvious applicants' claims. As is explained above, Anderson does not disclose the particle counts required by applicants' claims. Neither Kano nor Anderson et al disclose a ready to use, self-gauging coating composition that provides improved abuse resistance based on an aggregate having the particle size and particle count defined by applicants' claims. Accordingly it is submitted that the combination of Kano in view of Anderson et al fails to make obvious applicants' claims.

In paragraph 11 of the Office Action the Examiner has rejected claims 2, 4 and 14 - 17 under 35 USC § 103 as being obvious under US Patent 5,869,166 to

Caldwell in view of US Patent to 6,180,037 to Anderson et al. Here the Examiner repeats, verbatim, the argument concerning the Anderson patent set forth on pages 7 – 8, discussed above. As is explained above, Anderson does not disclose the particle counts required by applicants' claims. Neither Caldwell nor Anderson et al disclose a ready to use, self-gauging coating composition that provides improved abuse resistance based on an aggregate having the particle size and particle count defined by applicants' claims. Accordingly it is submitted that the combination of Caldwell in view of Anderson et al fails to make obvious applicants' claims.

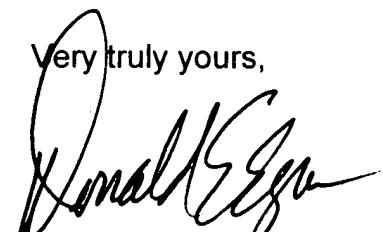
In paragraph 12 of the Office Action the Examiner cited three pieces of prior art as being pertinent, but has not applied any of these references against any of our claims. These references are US Patent 5,024,554 to Benneyworth et al, US Patent 3,985,018 to Adolf and US Patent 4,367,300 to Aoki et al. The Adolf reference is of interest in that it teaches a self-gauging coating composition (See Col 5, lines 50-52), but Adolf teaches the use of a very fine sized aggregate that would not provide the abuse-resistance achieved by compositions defined by applicants' claims. Accordingly, the Adolf reference does not anticipate or make obvious any of applicants' claims.

The Benneyworth reference and the Aoki et al reference too do not anticipate or make obvious any of applicants' claims.

It is submitted that all of the claims now in issue are patentable over the prior art and meet the standards of 35 USC 112. Reconsideration of all grounds

of rejection is respectfully requested in the light of the forgoing amendments and  
Remarks and an early Notice of Allowance is solicited.

Very truly yours,

A handwritten signature in black ink, appearing to read "Donald E. Egan". The signature is fluid and cursive, with "Donald" on the first line and "E. Egan" on the second line.

Donald E. Egan

July 30, 2002

## AMENDED CLAIMS 1 and 4 - 12, marked up version:

1. (AMENDED) A self-gauging coating composition comprising from about 3 to 10% by weight of a resin binder in which there is dispersed [a quantity] from about 18 to 55% by weight of an aggregate [particles], said aggregate consisting of at least 90% of particles passing a 30 mesh screen and at least 90% particles retained on a 50 mesh screen, [said] the quantity of said aggregate being sufficient to form layer of aggregate particles having a thickness from about 0.020 inches to about 0.050 inches and having from about 200 to about 1000 particles of aggregate per square inch.

4. (AMENDED) The self-gauging coating composition as described in claim 1 [3], wherein said self-gauging composition is [a setting-type] settable and contains sufficient aggregate to form a layer having from about 450 to about 650 particles of aggregate per square inch [composition and said quantity of aggregate is sufficient to form layer of aggregate particles having a thickness from about 0.020 inches to about 0.050 inches].

5. (AMENDED) The settable self-gauging coating composition as described in claim 4 [1], wherein said [self-gauging composition is a setting-type] composition contains [containing] from about 18 to about 48 percent by weight of said aggregate and from about 3 to about 9 percent by weight of said resin binder.

6. (AMENDED) The settable self-gauging coating composition as described in claim 5, wherein said composition contains about 30 percent by weight of said aggregate and about 8 percent by weight of said resin binder.

7. (AMENDED) The dryable self-gauging coating composition as described in claim 18 [1], wherein said self-gauging composition [is a drying-type composition containing] contains from about 18 to about 49 percent by weight of said aggregate and from about 3 to about 9 percent by weight of said resin binder.

8. (AMENDED) The dryable self-gauging coating composition as described in claim 7, wherein said composition contains about 31 percent by weight of said aggregate and about 7 percent by weight of said resin binder.

9. (AMENDED) The sprayable self-gauging coating composition as described in claim 19 [1], wherein [said self-gauging composition is a sprayable-type composition and] said quantity of aggregate is sufficient to form layer of aggregate particles having a thickness from about 0.030 inches to about 0.050 inches.

10. (AMENDED) The sprayable self-gauging coating composition as described in claim 9, wherein said quantity of aggregate is sufficient to form layer of aggregate particles having an average thickness of about 0.039 inches.

11. (AMENDED) The sprayable self-gauging coating composition as described in claim 19 [1], wherein said self-gauging composition contains [is a sprayable-type composition containing] from about 30 to about 55 percent by weight of said aggregate and from about 5 to about 10 percent by weight of said resin binder.

12. (AMENDED) The sprayable self-gauging coating composition as described in claim 11, wherein said composition contains about 44 percent by weight of said aggregate and about 6 percent by weight of said resin binder.